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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,425	03/21/2001	Everett X. Wang	42390.P11004	4061

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Dennis M. de Guzman  
BLAKELY, SOKOLOFF TAYLOR & ZAFMAN LLP  
Seventh Floor  
12400 Wilshire Boulevard  
Los Angeles, CA 90025-1026

EXAMINER
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MOONEY, MICHAEL P

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/814,425

Applicant(s)

WANG ET AL.

Examiner

Michael P. Mooney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 16-19 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 16-19 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/21/01 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/16/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 16, 18-19 are rejected under 35 U.S.C. 102b as being anticipated by Shinobu (JP 09080246).**

Shinobu teaches a method, including: forming a cladding material over a substrate (fig. 2(a)); lithographically patterning (fig. 2(c)) and etching the cladding

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material (fig. 3(a)) to obtain core regions and a spacing between the core regions that is made of the cladding material; and filling the core regions with a core material (fig. 3(b)).

Thus claim 1 is met.

Shinobu teaches a device, comprising: a spacing made of a first cladding material and formed by an etch process to remove portions of the first cladding material from core regions adjacent to the spacing (fig. 3(a)); a core material filled into the core regions subsequent to removal of portions of the first cladding material from the core regions (fig. 3(b)); and a layer made of a second cladding material and formed over the core material and over the first cladding material, including over the spacing. (fig. 4(b)) (See, in general, figs. 2-4 and associated text).

Thus claim 16 is met.

Shinobu teaches wherein upper surfaces of the core material, of the spacing, and of the first material are substantially flush. (fig. 4(b)) (See, in general, figs. 2-4 and associated text). Thus claim 18 is met.

Shinobu teaches wherein the core regions and spacing are patterned using a lithography technique. (figs. 2-3 and associated text). Thus claim 19 is met.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 2-7, 17, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinobu (JP 09080246).**

Shinobu teaches a method, including: forming a cladding material over a substrate (fig. 2(a)); lithographically patterning (fig. 2(c)) and etching the cladding material (fig. 3(a)) to obtain core regions and a spacing between the core regions that is made of the cladding material; and filling the core regions with a core material (fig. 3(b)).

Shinobu teaches wherein etching the cladding material comprises using an etching technique. Although Shinobu does not explicitly state “anisotropic” etching, it would have been obvious to do so because it is notoriously well known (NWK) to use the various etching techniques in such applications, including anisotropic etching for the purpose of optimizing design and/or production parameters.

Thus claim 2 is rejected.

Although Shinobu does not explicitly teach “wherein filling the core regions comprises using a deposition technique”, it would have been obvious to do so because it is notoriously well known (NWK) to fill the core regions comprises using a deposition technique in such applications. Thus claim 3 is rejected.

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Although Shinobu does not explicitly teach “wherein filling the core regions comprises using a re-flow process”, it would have been obvious to do so because it is notoriously well known (NWK) to fill the core regions comprises using a re-flow process in such applications. Thus claim 4 is rejected.

Although Shinobu does not explicitly teach “further comprising using a chemical-mechanical process to remove excess core material formed over the core regions and over the cladding material”, it would have been obvious to do so because it is notoriously well known (NWK) to remove excess core material formed over the core regions and over the cladding material using a chemical-mechanical process. Thus claim 5 is rejected.

Shinobu teaches forming another cladding material over the core regions and over the spacing (fig. 4(b)). Thus claim 6 is rejected.

Shinobu teaches wherein lithographically patterning the cladding material includes using a mask (See figs. 2). Thus claim 7 is rejected.

Shinobu teaches a device, comprising: a spacing made of a first cladding material and formed by an etch process to remove portions of the first cladding material from core regions adjacent to the spacing (fig. 3(a)); a core material filled into the core regions subsequent to removal of portions of the first cladding material from the core regions (fig. 3(b)); and a layer made of a second cladding material and formed over the

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core material and over the first cladding material, including over the spacing. (fig. 4(b))  
(See, in general, figs. 2-4 and associated text).

Although Shinobu does not explicitly teach "wherein the first and second cladding materials comprise a similar material having a lower refraction index than the core material", it would have been obvious to do so because it is notoriously well known (NWK) for the first and second cladding materials to comprise a similar material having a lower refraction index than the core material in such applications. Thus claim 17 is rejected.

Although Shinobu does not explicitly teach "wherein the core regions are filled with the core material using a deposition or re-flow technique", it would have been obvious to do so because it is notoriously well known (NWK) to fill the core regions using a deposition or re-flow technique in such applications.

Thus claim 22 is rejected.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 571-272-2422. The examiner can normally be reached during weekdays, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

  
Michael P. Mooney  
Examiner  
Art Unit 2883

  
Frank G. Font  
Supervisory Patent Examiner  
Art Unit 2883

FGF/mpm  
8/23/04